

I. **Restriction Requirement Traversed**

Restriction between subcombinations of claims 5 and 11 has been made. That requirement is respectfully traversed for the following reasons. The restriction requirement has incorrectly set forth the basis for making the restriction. MPEP 806.05(d) states as follows:

Two or more claimed subcombinations, disclosed as usable together in a single combination, and which can be shown to be separately usable, are usually restrictable when the subcombinations do not overlap in scope and are not obvious variants.

To support a restriction requirement where applicant separately claims plural subcombinations usable together in a single combination and claims a combination that requires that particulars of a least one of said subcombinations, both two-way distinctness and reasons for insisting on restriction are necessary.

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For example, if an application claims ABC/B/C wherein ABC is a combination claim and B and C are each subcombinations that are properly restrictable from each other, the presence of a claim to C provides evidence that the details of B are not required for the patentability of combination ABC.

Thus, it is required that two subcombinations and one combination thereof be claimed in order for the restriction requirement to be proper. However, there is no combination claim in the present application. That is, using the MPEP analogy in the present claims, claim 1 recites A, claim 5 recites AB and claim 11 recites AC; there is no combination claim BC required by MPEP 806.05(d). Furthermore, there is clearly overlap between claim 5 and 11 since each depends from claim 1, whereas MPEP 806.05(d) requires no overlap.

Accordingly, it is submitted that the restriction requirement is improper and should be withdrawn, and that claim 11 should be examined.

II. Rejection of the Claims Traversed

In the presently claimed invention, a disk saw blade includes a saw chain designed to be disposed loosely on the circular disk, i.e., wherein the innermost radius of the chain r_{id} is greater than a radius r_{sb} defined by the bottoms of the grooves into which the projecting parts 22 of the driving links extend. As a result, the chain can be installed easily, without being pre-tensioned. Consequently, during operation of the saw, the tension imposed on the chain by the drive forces is not augmented by any pre-tensioning forces. Claim 1 recites that feature, namely that r_{id} is larger than r_{sb} .

Claim 1 stands rejected over Carlton which, as clearly shown in the Figures, does not provide an arrangement where the corresponding radius r_{id} is greater than r_{sb} ; rather, those radii are equal as demonstrated by the line r_{id}/r_{sb} marked on the attached copy of Carlton's Fig. 1. Any difference between those radii occurs only when the chain is being driven, i.e., in a working position, not when the chain is in a neutral position as presently claimed.

When stretched, Carlton's chain embodiment depicted in Figs. 1-4 will be tensioned by driving forces from the disk 12, as well as by and pre-tensioning forces applied to the chain when the chain was originally installed in the tight condition depicted in Carlton's figures. That is, the condition of the chain shown in Carlton's figures wherein the projecting parts lie flush against the bottoms of the grooves could not be attained without pre-tensioning the chain unless the dimensional tolerance of the chain/disk is zero, which in practice is virtually impossible to attain; the chain would typically have to be pre-tensioned to achieve the depicted flush condition. As

noted above, the presently claimed invention eliminates pre-tensioning which would otherwise increase the chain stretching, possibly leading to chain failure.

Carlton acknowledges such a chain-failure problem at column 4, lines 17-30

When a cutting blade is rotated at extremely high speeds, a centrifugal force develops tending to throw the chain radially outwardly, which has the effect of stretching the chain. When a chain is manufactured, a pin 84 interconnecting the side links and a center link is placed in a position extending through accommodating bores provided in these links and then "spun" or flattened at its opposite ends, firmly to secure these ends to the side links. When a chain so constructed is subjected to tension and stretched, failure tends to occur, either by the anchor link giving way at the location of the bore which receives pin 84, or by pin 84 failing in a region where the pin extends between an anchor line and a side link.

Carlton purports to deal with that problem, not by eliminating pre-tension, but rather by an arrangement depicted in Fig. 5 wherein the anchoring links 78 are provided with catch portions 88 that become situated in underlying relationship to catch portions 86 provided on the sprocket teeth of the disk 70. When the blade is rotated, engagement between the catch portions 86, 88 prevents radially outward movement of the chain, as explained at column 4, lines 7-16:

With the chain mounted in place, each anchor link is mounted with its anchor portion residing in a gully, and with catch portion 88 of the link underlying catch portion 86 which is part of a sprocket tooth. The structure described includes means interconnecting the anchor links and the disk preventing radially outward displacement of the anchor links. This means, more specifically, comprises interengaging catch portions on the anchor portion of a link and on a sprocket tooth, respectively. (emphasis added)

The above description of Carlton's Fig. 5 is relevant, because the Official Action makes reference to the embodiment depicted in that Figure 5 by asserting that:

the chain 76 when driven, moves from a neutral position, in which the chain is loosely mounted around the circumference of the disk 70 and the projecting part 78a of the respective driving link 78 is loosely inserted between to adjacent radial projections 86, to a working position, in which the chain is tensioned around the circumference of the disk 70 and the cam surface 88 on the respective driving link is in contact with the associated radial projection 86 per Fig. 5; wherein the length of the saw chain 76 is matched to the radius " r_o " of the disk 70, so that with the saw chain 76 and the disk 70 is arranged concentrically in the neutral position, a radius " R_{id} " to the projecting part 78a (bottom portion) of each driving link 78 is larger than a radius R_{sb} to the bottom of the groove 74 and less than a radius " R_u " to each projection 86 per modified Fig. 5 shown above.

Applicant cannot agree with the assertions made in that statement. Firstly, there is no indication anywhere in Carlton's description that the chain is initially in a loose condition.

Although the chain depicted in Figs. 1-4 of Carlton may move radially outwardly during operation, it is not seen that the chain of Fig. 5 could do so. As can be seen in Fig. 5, the chain is initially in a position such that the anchor portions 78 are in engagement with the bottoms of the grooves 74, and the catch portions 86, 88 contact one another. Thus, radially outward movement of the chain is prevented by the catch portions as explained at column 4, lines 10-13. It is clear that Carlton's goal is to minimize, or prevent, as much as possible any radial outward displacement of the chain from its engagement with the disk, in contrast to the presently claimed invention which starts from a loose contact between the chain and the disk.

Accordingly, it is submitted that claim 1 and claims dependent therefrom distinguish patentably over Carlton.

Regarding dependent claim 10, the Bueneman '348 patent was cited as allegedly teaching to form multiple chain grooves in a disk, reference being made to col. 1, lines 19-29, of that patent. However, Bueneman refers to "gang-saw assemblies" which involve multiple disks on a shaft, not multiple grooves in one disk as recited in claim 10.¹ Accordingly, an artisan would be taught by Bueneman to arrange multiple saw chains on respective separate disks mounted on a common shaft. Claim 10 should be allowable over the art cited thereagainst.


Allowance of the present application is respectfully requested.

Respectfully submitted,

BUCHANAN INGERSOLL & ROONEY PC

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By:



Alan E. Kopecki

Registration No. 25813

P.O. Box 1404
Alexandria, VA 22313-1404
703 836 6620

¹ "gang-saw. A saw having several parallel blades for making simultaneous cuts" *The Random House Dictionary of the English Language*, Second Edition, Unabridged, pg. 786.

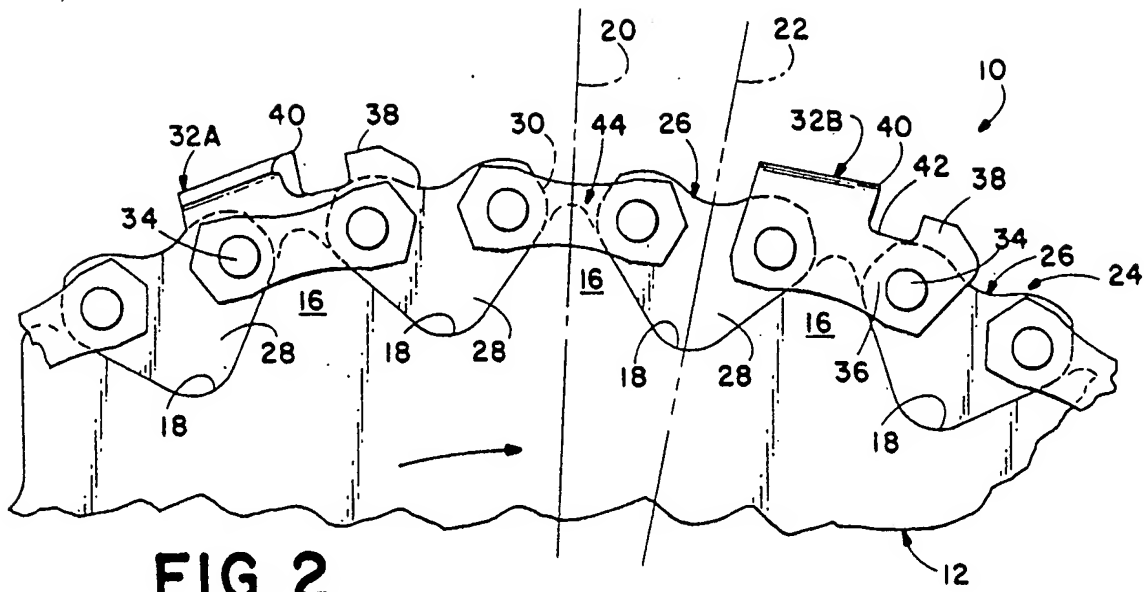


FIG. 2

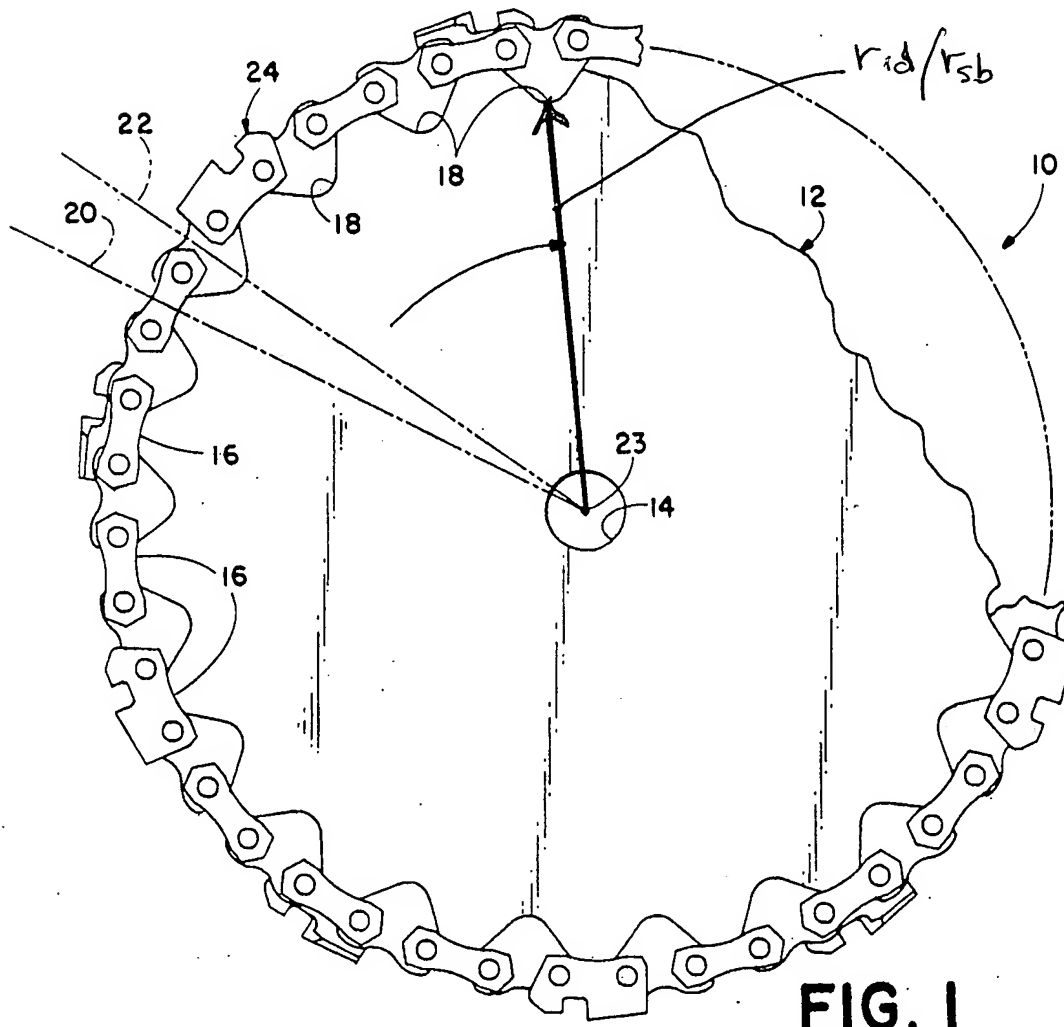


FIG. 1